

**CWA COMPLIANCE EVALUATION INSPECTION REPORT
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 5**

Purpose:

Compliance Evaluation Sampling Inspection

Facility:

Klug Dairy
3064 Hill Road
Greenleaf, WI 54126
Brown County
44.27N, 87.998W

NPDES Permit Number:

N/A

Date of Inspection:

June 2, 2014

EPA Representatives:

Joan Rogers, Environmental Scientist
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State Representatives:

None

Facility Representatives:

Paul Klug, Owner and General Manager

FOIA Exemption (b) (6)

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Colleen Loppnow, Agronomist

Report Prepared by:

Joan Rogers, EPA

Report Date:

July 9, 2014

Inspector Signature



1. BACKGROUND

The purpose of this report is to describe, evaluate and document the Klug Dairy's compliance with the Clean Water Act (CWA) at its Greenleaf, Wisconsin facility on June 2, 2014. This inspection was performed pursuant to Section 308(a) of the Federal Water Pollution Control Act, as amended.

Klug Dairy is a dairy operation that maintains approximately 450 mature dairy cows. They also have 200 heifers on site and approximately 120 calves are sent off to be raised by another facility. Due to the number of mature dairy cows, the facility is a medium animal feeding operation.

Surface water on the east side of the facility flows to the east to an adjacent intermittent unnamed tributary. This tributary flows approximately five miles to perennial Branch River. The Branch River flows approximately 23 miles to Manitowoc River which in turn flows another 12 miles to Lake Michigan.

On the west side of the facility, surface water would flow to a ditch that flows south along the western edge of the production area. The ditch flows into another intermittent unnamed tributary south of the facility. This intermittent unnamed tributary joins with the one that flows on the east side of the facility approximately 0.5 miles to the southeast of the facility.

South of the production area, surface water flows to the south and to storm water channels that flow south to the intermittent unnamed tributary south of the facility.

The facility has never been inspected by Wisconsin Department of Natural Resources (WDNR).

2. SITE INSPECTION

Table 1: Site Entry

Arrival Time:	10:20 A.M.
Temperature:	65°F
Precipitation:	Rain during the inspection
Presented credentials?	Yes
Credentials presented to whom and at what time?	Facility owner at 10:20 A.M.
EPA vehicle parked in approved location?	Yes
Location where EPA vehicle was parked?	By the office
Disposable boots worn?	Yes
Other bio-security measures taken:	None

2.1 Records Review (The following Records Review tables reflect information provided before the walk-through of the facility, unless otherwise noted.)

Table 2: Documents

Checklist(s) Used	
R5 CAFO Inspection Checklist	
Facility Documents Reviewed:	
None	
If photographs or documents were taken, does the facility consider any to be Confidential Business Information (CBI)?	
No	
Which information does the facility consider to be CBI?	None

Table 3: Facility Description

Type of Animal	Number of Animals	Capacity	Type of Confinement
Mature Dairy Cattle	450	550	Freestall Barn
Heifers	200	200	Barns and Pasture
Minimum Number of Animals in previous 5 years:			Same
Maximum Number of Animals in previous 5 years:			Same
Number of Animals that are stabled/confined and/or fed/maintained for 45 days or more in previous 12 months:			Same
Amount of Liquid Manure Generated per year:			Unknown
Amount of Solid Manure Generated per year:			Unknown
Does the facility have an NPDES Permit?			No
SIC or NAICS code:			0241
Do animals have direct access to WOUS?			No
Are crops, vegetation, forage growth, or post harvest residues sustained in the normal growing season over any portion of the lot or facility where animals are kept?			No
What is the area (acres) of the production area?			Approximately 10 acres
What is the area (acres) of the pasture?			Approximately 3-4 acres
How many employees (not counting family members)?			Less than 5
Other facilities under common ownership (name and address): None			

Table 4: Livestock Waste Storage

Type of Storage	Storage Capacity	Type of Liner	Depth Markers Present	Last Time Waste was Removed	Amount of Waste Removed	Days of Storage
Pond #1	3.5 million gallons	Concrete	No			1.5 years with Pond #2
Pond #2	5 million gallons	Clay	No			1.5 years with Pond #1
Pit below slatted floor in Heifer barn	8' x 70' x 110'	Concrete	No			Pumped to Pond #1
Records at site of storage structure design?				No. Stored at Brown County office.		
Is manure stored for the short term? If yes, describe where it is stored, how it is drained and where it drains to.				No		
Are records kept of the level of manure in the storage structures?				No		
When was the last time a storage structure was emptied, either partially or completely?				Fall 2013		
What amount of manure or process wastewater was removed the last time the storage structure was emptied, either partially or completely?				1 to 1.5 million gallons		
Do the facility personnel inspect and keep records of all diversion devices?				No		
Do the facility personnel inspect and keep records of all impoundments?				No		
Do the facility personnel inspect and keep records of all the water lines?				No		
Do the facility personnel perform routine visual inspections and keep records of the production area?				Performs visual inspections daily but does not keep records.		
Does the waste storage system have a managed outfall or discharge point? If yes, provide a description of the outfall and a description of the area receiving the discharge.				No		
Has the facility had any documented discharges of livestock waste to surface water in the past year?				No		

Are there safety devices installed around any manure storage ponds? (Barriers at the end of manure push off platforms, fences around pond, signage.)	No
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Table 5: Livestock Waste Management

Describe the way manure is collected and disposed of at the facility:	
Manure and process wastewater from the Milking Parlor is pumped to Pond #1. Manure and process wastewater in the freestall barns is manually scraped with a skid steer to a reception pit and it is then pumped to Pond #1. Manure and process wastewater from the pit below the slatted floor of the Heifer Barn is pumped out and either land applied or put in Pond #1. Silage leachate and process wastewater from the Silage Pad flows to a pipe at ground level that catches the first flush in a tank. The contents of the tank are pumped out and put into Pond #1.	
Describe the way used bedding is collected and disposed of at the facility:	
Sand is used for bedding and it flows with the manure and process wastewater and is eventually land applied.	
Are mortality records kept?	Yes
Describe the way mortalities are managed at the facility:	
The facility pays a local Mink Ranch to pick up mortalities.	
What type of method is used to provide drinking water for the animals?	Waterers with a float system.
Describe the way spilled drinking water is collected and disposed of at the facility:	
Spilled drinking water is handled with the manure and goes to Pond #1.	
Describe the way mist cooling water is collected and disposed of at the facility:	
No mist cooling system at the facility.	
Describe how chemicals are stored and how used or spilled chemicals are stored:	
Iodine, Copper Sulfate and Tetracycline are stored in the shed. No information on how the chemicals are disposed of was discussed.	
Describe the way water that has been used to wash/flush barns is collected and disposed of at the facility:	
Barns are not flushed.	
Describe where water comes from that is used to clean and/or flush. (Wells, city, etc.)	
Well water is used for drinking water.	
Describe the way feed is contained and how runoff from feed is collected and disposed of at the facility:	

<p>Corn silage and haylage are stored in concrete bunkers, covered with tarps. Proteins are stored in bins. Process wastewater from feed flows to a pipe that is connected to an underground 6000 gallon tank. The contents of the tank are sucked out periodically and put in Pond #1. Process wastewater that doesn't make it into the pipe and then the tank flows to a storm water pipe at ground level and discharges on the hillside south of the Hay Barn and to the ditch on the west side of the facility.</p>	
<p>If a dairy, describe how process wastewater from the plate cooler water is collected and disposed of at the facility:</p>	
<p>Plate cooler water is collected and reused for animal drinking water.</p>	
<p>If a dairy, describe how process wastewater from the cleaning of the milking parlor is collected and disposed of at the facility:</p>	
<p>Flows to a drain and then to the reception pit where it is then pumped to Pond #1.</p>	
<p>If a dairy, describe how process wastewater from the cleaning of the milk tanks is disposed of at the facility:</p>	
<p>Flows to a drain and then to the reception pit where it is then pumped to Pond #1.</p>	
<p>If a dairy, how many times per day are cows milked?</p>	<p>Three times per day</p>

Table 6: Land Application and Disposal of Manure and Process Wastewater

Does the facility perform and keep records of the manure testing?	Yes
When was the last time a sample was taken of the manure and/or process wastewater?	Fall 2013
Describe the process to take the manure and/or process wastewater sample.	The manure is mixed and then a grab sample is taken from the flow as it is being pumped from the pond, or out of the tanker.
Number of acres available for land application:	1200 acres, of which only 100 acres are rented.
Are land application records kept?	Yes
Who applies the manure and process wastewater to the fields?	Facility
Does the facility perform and keep records of the soil testing?	Yes
Is manure transferred off-site to another party?	No
Are manure transfer records maintained?	N/A
Do facility personnel perform periodic inspection of land application equipment?	Yes

Table 7: Receiving Surface Waters

Describe the surface flow pathways:	
<p>Surface water on the east side of the facility flows to the east to an adjacent intermittent unnamed tributary. This tributary flows approximately five miles to perennial Branch River. The Branch River flows approximately 23 miles to Manitowoc River which in turn flows another 12 miles to Lake Michigan.</p> <p>On the west side of the facility, surface water would flow to a ditch that flows south along the western edge of the production area. The ditch flows into another intermittent unnamed tributary south of the facility. This intermittent unnamed tributary joins with the one that flows on the east side of the facility approximately 0.5 miles to the southeast of the facility.</p> <p>South of the production area, surface water flows to the south and to storm water channels that flow south to the intermittent unnamed tributary south of the facility.</p>	
How many months out of the year is there flow in the nearest surface water pathway:	During the spring and during rain events.
Are there any storm water pathways entering the facility?	No
Are there any clean water ponds on site?	No
What is the name of the first waterway that is identified as a Traditional Navigable Water (TNW) for surface flow from the facility?	The Manitowoc River is identified as a Traditional Navigable Water from the fixed railroad bridge above 21 st Street, 2.37 miles above the mouth.
Is the surface water pathway nearest to the facility considered to be ephemeral, intermittent or perennial?	Intermittent
Has the surface water pathway nearest to the facility been assessed for water quality?	No, but the Branch River has been assessed and it is listed on the draft 2012 Impaired Waters list, impaired for PCBs.

Table 8: Nutrient Management Plan

NMP on site?	No, it is being updated. EPA did not view the NMP.
Date NMP Submitted:	First NMP was developed over 10 years ago. It is updated yearly.
Planner Name/Company:	Colleen Loppnow, CCA
Date that the NMP was last updated:	June 2014

Table 9: Land Application Records (details of the records reviewed)

EPA did not view any land application records.
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Table 10: Facility Records (details of the records reviewed)

EPA did not view any land application records.

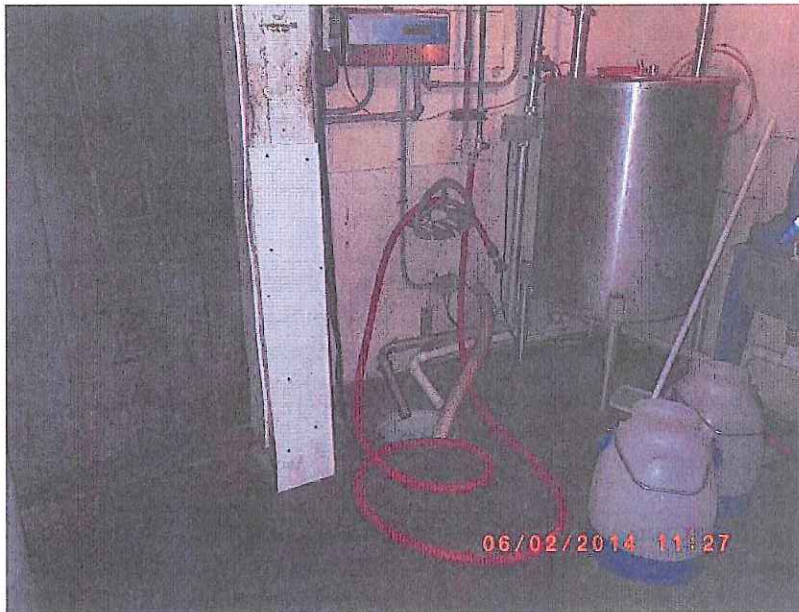
Table 11: NPDES Permit

The facility does not have an NPDES Permit.

2.2 Walkthrough of the Facility

EPA began the walkthrough of the facility at approximately 11:15 A.M. The facility owner's technical service provider, who had been present during the records review, accompanied the facility owner and EPA on the walk through.

At the Milking Parlor and observed that the process wastewater from the Milking Parlor and the Milk Tanks flowed into a pit inside the Holding Alley where it was then pumped to Pond #1.



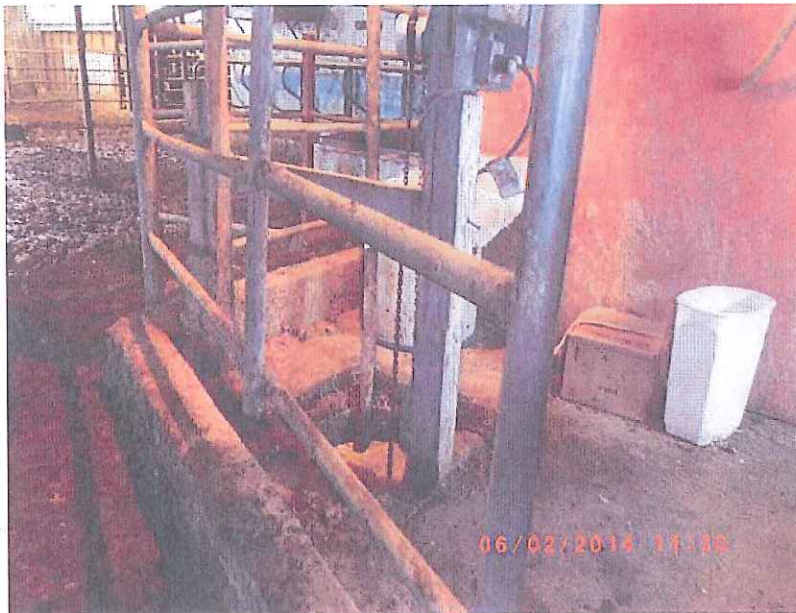
1: IMGP1089

Description: Milking Parlor and Milk Tank wash water are flow into a pit where it is pumped to Pond #1.

Location: Milk Tank Room

Camera Direction: Down

Date/Time: June 2, 2014 11:27 A.M.



2: IMGP1092

Description: Reception Pit in Holding Alley for Milking Parlor. Manure and process wastewater is then pumped to Pond #1.

Location: Holding Alley

Camera Direction: West

Date/Time: June 2, 2014 11:30 A.M.

On the east side of the Milking Parlor, EPA observed that there was no containment for manure and process wastewater from the Cattle Walkway. Between the Milking Parlor and the Heifer Barn just to the east there was a large amount of standing storm water. The facility owner had placed a submersible pump in the north end of the large amount of standing storm water and the water was being pumped to the concrete pad on the north side of the Heifer Barn. The storm water flowed over the concrete and to a storm water channel east of the Heifer Barn. This storm water channel connected via culvert pipes to an intermittent unnamed tributary that flowed south. Precipitation coming into contact with manure and process wastewater in the Cattle Walkway would flow to the large amount of standing storm water and then would be pumped across the concrete and into the storm water channel and flow into the intermittent unnamed tributary.



3: IMGP1094

Description: Large amount of standing storm water from precipitation between Heifer Barn and Milking Parlor.

Location: East of Milking Parlor

Camera Direction: South

Date/Time: June 2, 2014 11:32 A.M.



4: IMGP1095

Description: A pump inside white bucket pumps water from the large amount of standing storm water to a storm water ditch on the east side of the production area.

Location: Northwest corner of Heifer Barn

Camera Direction: East

Date/Time: June 2, 2014 11:36 A.M.



5: IMGP1096

Description: Northern door of Heifer Barn has track in and track out of manure and process wastewater. Water pumped from the between the barns outlets in front of the Heifer Barn and travels across the concrete to a storm water channel.

Location: Northwest corner of Heifer Barn

Camera Direction: East

Date/Time: June 2, 2014 11:37 A.M.



6: IMGP1097

Description: Water pumped from between the barns flows to the beginning of a storm water channel east of the Heifer Barn.

Location: Northeast of the Heifer Barn

Camera Direction: Down

Date/Time: June 2, 2014 11:38 A.M.

EPA walked along the eastern side of the two manure ponds. Just east of the ponds, the intermittent unnamed tributary flowed to the south. There was water in the tributary on the day of the inspection.

Pond #1 is north of Pond #2 and is lined with concrete. It had approximately four feet of freeboard on the day of the inspection. A channel in the berm separating the two ponds allows manure to flow from Pond #1 to Pond #2. Pond #2 is lined with clay and also had approximately four feet of freeboard. There were no staff gauges in either pond and the vegetation on the berms was very tall. There also was a small amount of woody growth in the berms.

South of Pond #2, a storm water channel from the barn area flowed east to the intermittent unnamed tributary. There was water in the storm water channel on the day of the inspection.



7: IMG1101

Description: Manure flows from Pond #1 (on left) to Pond #2 via the channel between them.

Location: On berm between Pond #1 and Pond #2

Camera Direction: East

Date/Time: June 2, 2014 11:45 A.M.



8: IMGP1102

Description: Vegetation on berms needs to be mowed. Storm water channel flows along the east side of the manure ponds.

Location: Pond #2

Camera Direction: North

Date/Time: June 2, 2014 11:47 A.M.



17: IMGP1106

Description: Storm water channel from the production area goes around the south side of the manure ponds and joins with the storm water channel on the east side of the production area.

Location: Southwest corner of Pond #2

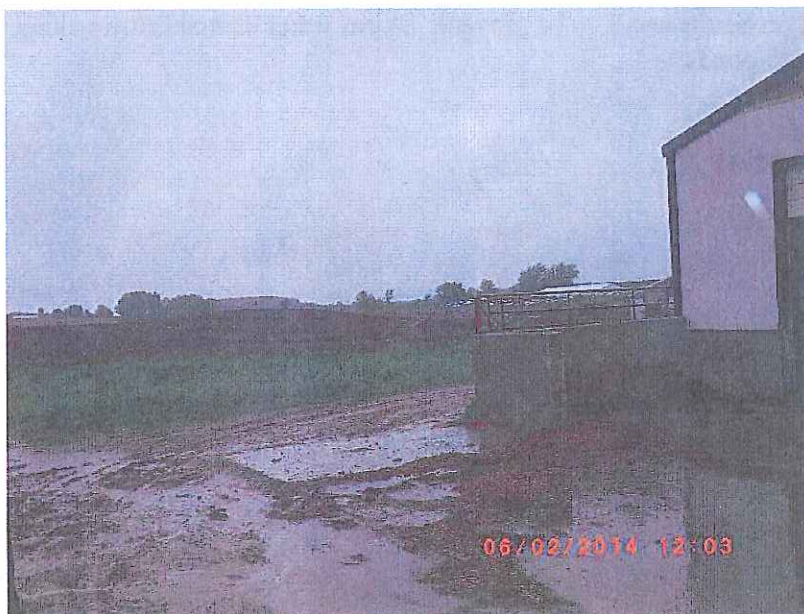
Camera Direction: Southwest

Date/Time: June 2, 2014 11:59 A.M.

EPA walked to the southern end of the Freestall Barns and noted track in and track out of manure and feed at the south door of Freestall Barn #3. During precipitation events, the manure and process wastewater would flow with the precipitation to the south and to a storm water channel at the southern end of the facility. This storm water channel flowed south and west through a stand of trees to another intermittent unnamed tributary which flowed to the east. EPA observed runoff from the track in and track out of Freestall Barn #3 flowing to the south.

EPA walked to the southern end of the feedlots south of the freestall barns. The feedlots were completely denuded of vegetation and runoff was observed flowing off the lots and into the storm water channel on the south side of the facility.

EPA walked back to the north and observed the south doors of the Maternity Barn (which was attached to the west side of Freestall Barn #3), Freestall Barn #1 and the Dry Cow Barn. Track in and track out by these doors was also observed. A well defined storm water channel flowed from the Dry Cow Barn to the storm water channel on the south side of the facility.



18: IMGP1107

Description: Track in and track out from south door of the Freestall Barn #3.

Location: South of Freestall Barn #3

Camera Direction: West

Date/Time: June 2, 2014 12:03 P.M.



19: IMGP1108

Description: Runoff from track in and track out from Freestall Barn #3 flows to the south and to a storm water channel.

Location: Southwest of Freestall Barn #3

Camera Direction: Southwest

Date/Time: June 2, 2014 12:04 P.M.



21: IMGP1110

Description: Runoff from feedlots pools on the south side and then flows into the storm water channel to the south.

Location: South of feedlots

Camera Direction: North

Date/Time: June 2, 2014 12:08 P.M.



22: IMGP1111

Description: Maternity Barn on the west side of Freestall Barn #3. Track in and track out from the barn door flows with precipitation to the storm water channel to the south.

Location: West side of Freestall Barn #3

Camera Direction: North

Date/Time: June 2, 2014 12:13 P.M.



23: IMGP1112

Description: Process wastewater from track in and track out from barn doors flows to the south to the storm water channel.

Location: Southwest of Freestall Barn #3

Camera Direction: Southwest

Date/Time: June 2, 2014 12:15 P.M.

EPA walked back to the north on the west side of the manure ponds and east of the freestall barns. At the north door of Freestall Barn #2, EPA noted track in and track out of manure and feed. With precipitation, the track in and track out would flow to the north and to the large amount of standing storm water between the Milking Parlor and the Heifer Barn which was observed previously. EPA noted plumes of process wastewater flowing from the north door of Freestall Barn #2 to the north toward the large amount of standing storm water.



24: IMGP1113

Description: No containment for manure and process wastewater from the barn door and runoff can flow with precipitation to the north to the large amount of standing storm water between the Milking Parlor and the Heifer Barn which is pumped to the storm water channel.

Location: North of Freestall Barn #2

Camera Direction: Northwest

Date/Time: June 2, 2014 12:24 P.M.



25: IMGP1114

Description: Manure and process wastewater is not contained in the barn.

Location: North of Freestall Barn #2

Camera Direction: East

Date/Time: June 2, 2014 12:24 P.M.



26: IMGP1115

Description: Manure and process wastewater from Freestall Barn #2 flows to the north with precipitation. Note the large amount of standing storm water to the left of the barn. This large amount of standing storm water has a pump in its north side.

Location: North of Freestall Barn #2

Camera Direction: Northeast

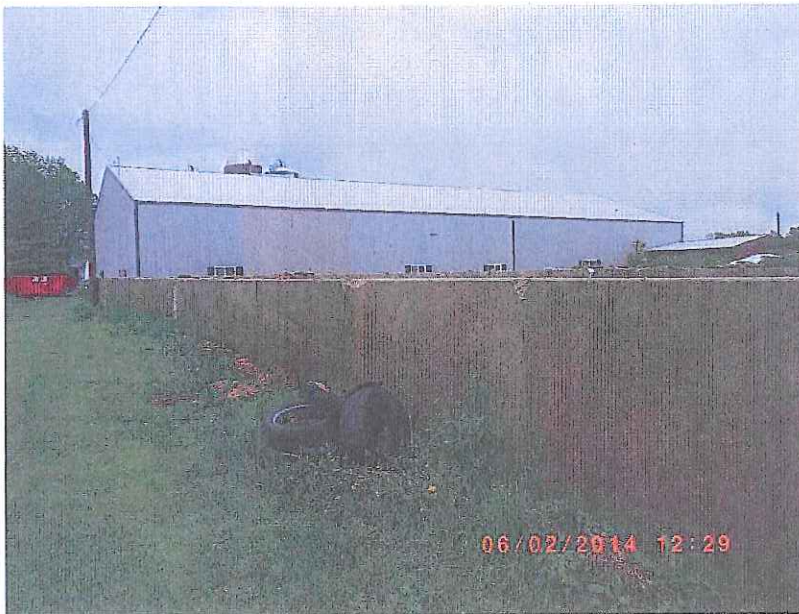
Date/Time: June 2, 2014 12:24 P.M.

EPA then walked to the west to observe the feed storage area. A small amount of feed had fallen over the top of the wall on the north side of the bunker. Silage was stored on the Silage Pad under tarps in concrete storage bunkers.

The first flush of precipitation and process wastewater from silage leachate was designed to flow to a tank that was buried below the northwest side of the Silage Pad. Flow was to enter the tank via a 4" pipe inlet that was flush with the ground. EPA observed that the inlet was blocked by debris and none of the process wastewater from the Silage Pad was entering the pipe. Instead, the flow continued to the west and entered a 12" storm water pipe at the northeast corner of the Hay Barn which was also flush with the ground. EPA observed a distinct plume of process wastewater from precipitation mixed with silage leachate flowing into the storm water pipe.

The storm water pipe outlet was located in the hillside south of the Hay Barn. The mixed process wastewater and storm water exited the pipe and flowed down the hill and to a ditch on the west side of the facility. This ditch flowed to the south and into the intermittent unnamed tributary on the south side of the facility.

Additional silage leachate was pooled on the ground at the southeast corner of the Hay Barn. The process wastewater from the silage leachate could be transported with precipitation to the west and down the hillside to the ditch.



28: IMGP1117

Description: North wall of Silage Bunkers.

Location: Silage Pad

Camera Direction: Southeast

Date/Time: June 2, 2014 12:29 P.M.



29: IMGP1118

Description: Silage is stored in under tarps in concrete storage bunkers.

Location: Silage Pad

Camera Direction: Southeast

Date/Time: June 2, 2014 12:30 P.M.



30: IMGP1119

Description: Silage leachate flows toward a hole that is designed for first flush capture.

Inlet hole location is where the person is standing.

Location: Silage Pad

Camera Direction: Southwest

Date/Time: June 2, 2014 12:30 P.M.



31: IMGP1120

Description: Silage leachate bypassed the small hole for first flush and flowed to a storm water pipe.

Location: Silage Pad

Camera Direction: West and down

Date/Time: June 2, 2014 12:31 P.M.



32: IMGP1121

Description: Silage also pooled on the south side of the Hay Barn.

Location: Southeast corner of the Hay Barn

Camera Direction: Down

Date/Time: June 2, 2014 12:32 P.M.



33: IMGP1122

Description: Storm water pipe outlet in the hillside south of the Hay Barn (red circle).

Location: South of the Hay Barn

Camera Direction: Southwest

Date/Time: June 2, 2014 12:33 P.M.



38: IMGP1127

Description: Flow of process wastewater from the outlet of the storm water pipe in the Silage Pad to the hillside south of the Hay Barn.

Location: South of Hay Barn

Camera Direction: Northeast

Date/Time: June 2, 2014 1:22 P.M.

EPA walked back to the vehicle and gathered sampling supplies. EPA offered to split the samples and the facility owner declined. EPA took the first sample, S01, named "Silage", at 12:55 P.M. from the flow of precipitation and silage leachate process wastewater into the storm water pipe on the west side of the Silage Pad.

EPA walked to the west and took the second sample, S02, named "Confluence w/Ditch", at 1:08 P.M. from the flow of process wastewater after flowing out of the pipe and down the hillside as it flowed into the ditch on the west side of the facility. A duplicate sample, S03, named "Duplicate S02", was also taken in this location.

EPA then followed the ditch to the south, observing and documenting that there was water in the ditch all the way to the confluence with the intermittent unnamed tributary on the south side of the facility. Runoff from an agricultural crop field west of the ditch flowed into the ditch in at least one location. For this reason, EPA did not take a sample from the ditch at the confluence with the intermittent unnamed tributary on the south side of the facility. Any nutrients in the sample would not be able to be shown to come solely from the process wastewater from the silage leachate.



34: IMGP1123

Description: Sample S01, "Silage", taken at 12:55 P.M. from the flow of precipitation and silage leachate process wastewater into the storm water pipe on the west side of the Silage Pad.

Location: Silage Pad

Camera Direction: Down

Date/Time: June 2, 2014 12:58 P.M.



36: IMGP1125

Description: Sample S02, "Confluence w/Ditch", was taken at 1:08 P.M. from the runoff pathway from the outlet of the storm water pipe from the Silage Pad to the ditch on the west side of the facility. Sample S03, "Duplicate S02" was also taken here.

Location: South of Hay Barn

Camera Direction: Down

Date/Time: June 2, 2014 1:20 P.M.



44: IMGP1133

Description: EPA observed continuous water connection in the ditch on the west side of the facility.

Location: Along the West Ditch

Camera Direction: West

Date/Time: June 2, 2014 1:25 P.M.



54: IMGP1143

Description: Field runoff to the ditch on the west side of the facility.

Location: Along the ditch on the west side of the facility

Camera Direction: Southeast

Date/Time: June 2, 2014 1:30 P.M.



58: IMGP1147

Description: The confluence of the ditch on the west side of the facility (red arrow) with the intermittent unnamed tributary (blue arrow).

Location: South end of ditch on the west side of the facility

Camera Direction: Southwest

Date/Time: June 2, 2014 1:33 P.M.



60: IMGP1149

Description: Looking downstream at the intermittent unnamed tributary from the confluence with the ditch on the west side of the facility. Note that there is a distinct bed and bank in the tributary.

Location: Confluence of the ditch on the west side of the facility with the intermittent unnamed tributary

Camera Direction: Southeast

Date/Time: June 2, 2014 1:34 P.M.



61: IMGP1150

Description: Looking upstream at the intermittent unnamed tributary from the confluence with the ditch on the west side of the facility.

Location: Confluence of the ditch on the west side of the facility with the intermittent unnamed tributary

Camera Direction: Southwest

Date/Time: June 2, 2014 1:34 P.M.

EPA walked east and north toward the stand of trees. EPA walked on the south side of the stand of trees and came across a mortality pile. The mortalities were not covered properly or buried. They were decomposing and covered with maggots. Bones from the scavenged carcasses were observed laying on the ground near the carcasses.

The facility owner stated that he had given his workers downed cows to cut up and eat and the carcasses were left over from that.

When EPA arrived at the southern end of the feedlots where the runoff from the feedlots was flowing into the storm water channel, EPA took the fourth sample, S04, named "Feedlot Runoff" at 1:50 P.M.



62: IMGP1154

Description: Mortalities left to decompose in the trees south of the feedlots.

Location: Stand of trees south of the feedlots

Camera Direction: Southwest

Date/Time: June 2, 2014 1:39 P.M.



63: IMGP1155

Description: Facility owner stated that these were carcasses from downed cows that he let his workers cut up and eat.

Location: Stand of trees south of the feedlots

Camera Direction: Northwest

Date/Time: June 2, 2014 1:40 P.M.



68: IMGP1160

Description: EPA took sample S04, "Feedlot Runoff", at 1:50 P.M. from the flow of runoff from the feedlots into the storm water channel south of the facility.

Location: Southern edge of the feedlots

Camera Direction: Down

Date/Time: June 2, 2014 1:54 P.M.



70: IMGPI162

Description: Flow of runoff from the bare feedlots goes into the storm water channel south of the facility.

Location: South of the feedlots

Camera Direction: Northeast

Date/Time: June 2, 2014 1:54 P.M.

EPA walked back to the vehicle and prepared a field blank sample, S05, named "Blank", at 2:05 P.M. EPA preserved the samples and provided the facility owner with a closing conference. EPA left their disposable booties at the facility and exited the facility at approximately 2:30 P.M.

EPA performed a waterway investigation later that evening beginning at approximately 7:00 P.M. Photos from the waterway investigation are in the Photo Log.

The two intermittent unnamed tributaries, one on the east side of the facility and one on the south side, each crossed under Morrison Road east of the facility. Both flowed east/southeast at those locations. EPA noted distinct bed and bank in both tributaries.

The two intermittent tributaries joined together east of Morrison Road and flowed southeast crossing south under Wayside Road at Stone Road. EPA then documented the flow east under Dickenson Road north of Queens Road and then north under Dickenson Road (County Road G) east of Dickenson Road. EPA continued to the north and documented the flow under Wayside Road east of Dickenson Road. The tributary is still considered intermittent at this location, but the tributary was approximately 30 feet wide.

North of this location, the tributary took a turn to the northeast and EPA documented the flow under Bocks Road north of Wayside Road. East of Bocks Road, the tributary confluences with the Branch River which is classified as a perennial stream. EPA

documented the Branch River as it flowed under Wayside Road and then again as it flowed under Man Cal Road. There was flow in all the waterways observed.

2.3 Closing Conference and Post-Inspection

Table 12: Post Walk-Through

Were specific “Potential Violations” discussed with facility personnel?	Yes
Were specific “Areas of Concern” discussed with facility personnel?	Yes
Who were the Potential Violations or Areas of Concern discussed with?	
The facility owner.	
Compliance assistance materials given to facility personnel:	
Concentrated Animal Feeding Operations Final Rulemaking – Fact Sheet	
U.S. EPA Small Business Resources Information Sheet	
NRCS Most Common Conservation Practices for Confined Livestock Fact Sheet	
Environmental Quality Incentives Program (EQIP) Brochure	
Exit Time:	2:30 P.M.
Disposable Boots Left at Facility?	Yes
Vehicle Washed after leaving facility?	Yes
Date and Time that vehicle was washed:	6/2/14 at approximately 9:00 P.M.

Table 13: Waterway Documentation

List the pathway taken by EPA inspectors to document the waterway at the facility.
EPA inspectors observed the intermittent unnamed tributary on the east side of the facility east of the manure ponds. EPA also observed the ditch on the west side of the facility and noted that there was water in the ditch all the way to the confluence with an intermittent unnamed tributary south of the facility. EPA walked east along this intermittent unnamed tributary for a short distance. EPA also observed storm water pathways from the south end of the facility to the intermittent unnamed tributary south of the facility.

Table 14a: Sampling Information

Were samples taken?	Yes
Were samples split with facility?	No
Number of samples taken?	Five
Was a trip blank created?	Yes
Identify which sample is the trip blank.	S05
Were field duplicate samples taken (1 duplicate per 20 samples)?	Yes
Identify which sample(s) is/are the field duplicate(s)	S03 is duplicate of S02

Were equipment blanks taken (if more than one type of equipment was used to collect samples)?	No
Identify which samples were equipment blanks.	N/A
List chain of custody for fecal coliform and BOD samples:	EPA to Pace Analytical Laboratory on 6/2/14
List chain of custody for nutrient and general chemistry samples:	EPA to Region 5 Central Regional Laboratory on 6/3/14
Location where samples were preserved:	At the facility
Name of people involved with sample preservation:	Joan Rogers John Bajor Michelle Heger
Time of sample preservation:	2:00 P.M.
Were samples shipped to a lab?	No
Did all inspectors involved with the sampling sign the chain of custody?	Yes
Weather conditions at the time of sample collection:	Cloudy and 65°F
Camera name and type used to photograph sample collection:	Pentax Optio WG-1 GPS #2

Table 14b: Facility Sample Information

Number	Name	Location	Date	Time	Collector	Photo #	Photographer	Method of Collection	Amount of Sulfuric Acid
S01	Silage	At the flow of process wastewater flowing into the storm water pipe west of the Silage Pad.	6/2/14	1255	Michelle Heger	34, 35	Joan Rogers	Grab	2 ml
S02	Confluence w/Ditch	At the confluence of the flow from the outlet of the storm water pipe where it went into the ditch on the west side of the facility.	6/2/14	1308	Michelle Heger	36, 37	Joan Rogers	Grab	1.1 ml
S03	Duplicate S02	At the confluence of the flow from the outlet of the storm water pipe where it went into the ditch on the west side of the facility.	6/2/14	1308	Michelle Heger	36, 37	Joan Rogers	Grab	1.0 ml
S04	Feedlot Runoff	From a runoff pathway from the feedlot south of the facility into the intermittent unnamed tributary south of the facility.	6/2/14	1350	Jack Bajor	68, 69	Joan Rogers	Grab	2.0 ml
S05	Blank	Near the office.	6/2/14	1405	Michelle Heger	none	Joan Rogers	Grab	1.0 ml

Table 15: Sample Results

Sample ID	Sample Description (all liquid samples unless otherwise noted)	Biochemical Oxygen Demand (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Nitrate-Nitrite N (mg/L)	Ammonia as N (mg/L)	Total Phosphorus (mg/L)	Total Dissolved Solids (mg/L)	Total Suspended Solids (mg/L)	Fecal Coliform (CFU/100ml)
	<i>Typical limits</i>			<i>0.1 *</i>	<i>15</i>	<i>.05 **</i>	<i>1000</i>		<i>200 ***</i>
S01	Silage	6800	273	0.32	53.5	85.3	3460	58	TNTC ****
S02	Confluence w/Ditch	457	44.7	8.82	10.8	15.0	1170	139	14,200,000
S03	Duplicate S02	427	50.0	8.88	11.4	22.0	1110	140	N/A
S04	Feedlot Runoff	78.8	88.2	U	8.72	27.1	2570	510	22,000,000
S05	Blank	2.5	U	U	U	U	U	U	N/A

U = Not Detected

In Wisconsin, there are no Water Quality Standards for Biochemical Oxygen Demand, Total Kjeldahl Nitrogen, Nitrate-Nitrite, Ammonia as Nitrogen, Total Dissolved Solids and Total Suspended Solids but a limit for Nitrate-Nitrite is provided and is meant to be a benchmark for comparison only.

* Maximum Nitrate-Nitrite amount for aquatic life (North Carolina State University Water Quality Group)

**Maximum Total Phosphorus limit for all other unidirectional streams/rivers not listed in Chapter NR 102.6 (3) (a) of Wisconsin Administrative Code.

*** Although there are no effluent limits for CAFOs, the limit in Wisconsin for Fecal Coliform in a stream for general use is 200 colonies/100ml. (Chapter NR 102, Water Quality Standards for Wisconsin Surface Waters, November 2010 of the Wisconsin Administrative Code.)

**** TNTC means Too Numerous To Count. Sample concentration is > 100,000 CFU/100ml

- The Fecal Coliform results were analyzed by Pace Analytical Services, Inc., 1241 Bellevue Street, Suite 9, Green Bay, WI 54302.
- Ammonia Nitrogen, Total Phosphorus, Nitrate-Nitrite, Dissolved Solids (TDS), Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN), and Biochemical Oxygen Demand (BOD) were analyzed by the Region 5 Chicago Regional Laboratory.

3. POTENTIAL VIOLATIONS

According to Section 301(a) of the Clean Water Act, it is a violation to discharge pollutants from a CAFO to waters of the United States without a permit. EPA observed potential discharges in the following locations:

1. Manure and process wastewater from the Cattle Walkway to the large amount of standing storm water between the Milking Parlor and the Heifer Barn. The water in the large amount of standing storm water is pumped across the concrete of the entrance to the Heifer Barn and flows to a storm water channel which flows to an intermittent unnamed tributary on the east side of the facility.
2. Track in and track out from the north side of Barn #2 to the large amount of standing storm water between the Milking Parlor and the Heifer Barn. The water in the large amount of standing storm water is pumped across the concrete of the entrance to the Heifer Barn and flows to a storm water channel which flows to an intermittent unnamed tributary on the east side of the facility.
3. Track in and track out from the south doors of the freestall barns could flow with precipitation as process wastewater to the storm water channel to the south and then to the intermittent unnamed tributary on the south side of the facility.
4. Manure and process wastewater from the denuded feedlots flows to the storm water channel on the south side of the facility and during precipitation events would flow to the intermittent unnamed tributary on the south side of the facility.
5. Process wastewater from silage leachate flows to the storm water pipe on the west side of the Silage Pad and discharges to the hillside south of the Hay Barn. The process wastewater then flows into the ditch on the west side of the facility which in turn flows into the intermittent unnamed tributary on the south side of the facility.

4. AREAS OF CONCERN

EPA observed these areas of concern whereby pollutants have the potential to reach waters of the United States or best management practices are not being followed:

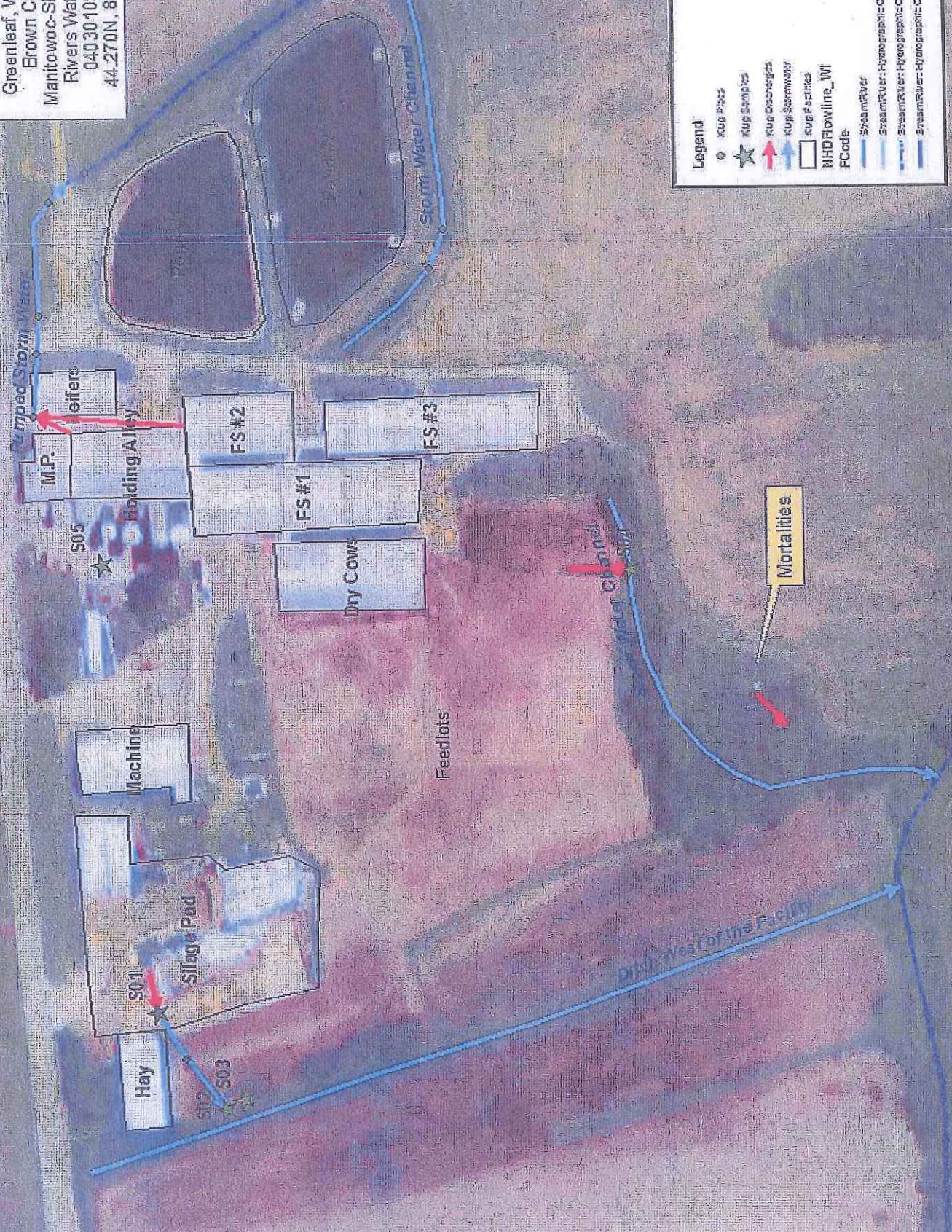
1. The vegetation on the berms of the manure ponds is too tall to be able to observe the condition of the berms and watch for rodent holes that can compromise the integrity of the berms.
2. There are a few woody growth plants growing in the berms of the manure ponds which need to be removed so as to prevent conduits in the berm walls from their roots.
3. Carcasses from downed animals are discarded improperly. Process wastewater from the decomposing carcasses could flow with precipitation to the intermittent unnamed tributary south of the facility.
4. There were no permanent capacity depth markers in the manure ponds.

5. **LIST OF ATTACHMENTS**

- A) Aerial map of Klug Dairy with buildings, waterways and discharge pathways labeled.
- B) Aerial map zoomed out to show Klug Dairy in relation to the surface waters.
- C) Sample analysis reports.

Klug Dairy
 3064 Hill Road
 Greenleaf, WI 54126
 Brown County
 Manitowoc-Sheboygan
 Rivers Watershed
 040301010501
 44.270N, 87.998W

ATTACHMENT A



Legend

- Klug Ponds
- Klug Samples
- Klug Discharges
- Klug Stormwater
- Klug Features
- MHDFlowline_WI
- FCODE
- StreamRiver
- StreamRiver: Hydrographic Category = Ephemeral
- StreamRiver: Hydrographic Category = Intermittent
- StreamRiver: Hydrographic Category = Perennial

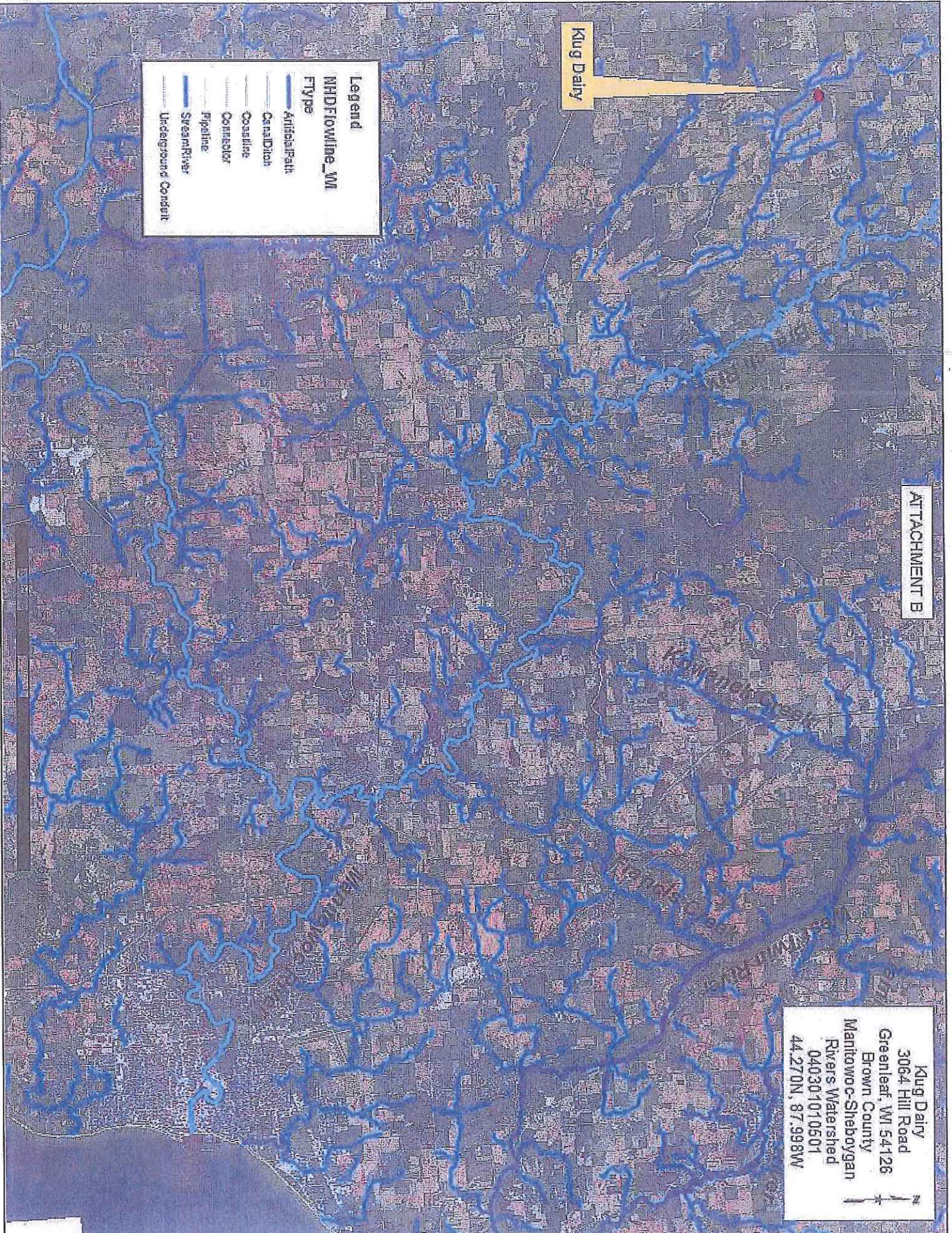


ATTACHMENT B

Klug Dairy
3064 Hill Road
Greenleaf, WI 54126
Brown County
Mantowoc-Sheboygan
Rivers Watershed
040301010501
44.270N, 87.998W

Klug Dairy

Legend
MHDFlowline_WM
FTYPE
ArtificialPath
CanalDitch
Coastline
Connector
Pipeline
StreamRiver
Underground Conduit





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CHICAGO REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605



LABORATORY
ACCREDITATION
BUREAU

ACCREDITED TO ISO/IEC 17025

Certificate # 12290 Testing

Date: 8/13/2014

Subject: Review of Region 5 Data for Klug Farm

To: Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

From: Nidia Fuentes, Analyst
US EPA Region 5 Chicago Regional Laboratory

The data transmitted under this cover memo successfully passed CRL's data review procedures as documented in the current Quality Management Plan and applicable Standard Operating Procedures. In accordance with EPA's *Guidance on Environmental Data Verification and Data Validation* (Document EPA QA/G-8), CRL verified and validated the data but does not perform data quality assessment based on project plans.

This report was reviewed and the information provided herein accurately represents the analysis performed.

x Nidia Fuentes

Please contact the analyst with any technical report issues, Amanda Wroble at (312)-353-0375 for sample project concerns, and Sylvia Griffin at (312)-353-9073 with data transmittal questions. Thank you.

Attached are Results for: Klug Farm

Data Management Coordinator and Data Transmitted

Analyses included in this report:

TKN DA

Total Phosphorus DA



Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Klug Farm
Project Number: 14JR03
Project Manager: Joan Rogers

Reported:
Aug-13-14 09:15

Analysis Case Narrative

General Information

A total of five water samples to be analyzed for Total Phosphorus (TP) were received at the Chicago Regional Laboratory on June 03, 2014. The samples for TP were digested and analyzed using CRL SOP AIG034A, Revision # 3.7 (EPA method 365.4) and Pen&Ink Reference No: AIG034 R3.7-PI01.

All holding times were met. The designated analyst for the sample is Nidia Fuentes. Nidia can be reached at 312-353-9079.

Sample Analysis and Results

The data reported herein meets the data quality and reporting requirements for CAFO samples 062014.

Quality Control

All quality control audits were within the CRL's limits.

Analysis Case Narrative

General Information

A total of five water samples to be analyzed for Total Kjeldahl Nitrogen (TKN) were received at the Chicago Regional Laboratory on June 03, 2014. The samples for TKN were digested and analyzed using CRL SOP AIG035A, Revision # 3.0 (EPA method 351.2).

All holding times were met. The designated analyst for these samples is Nidia Fuentes. Nidia can be reached at 312-353-9079.

Sample Analysis and Results

The data reported herein meets the data quality and reporting requirements for CAFO samples 062014.



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
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Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL, 60604

Project: King Farm
Project Number: 14JRO3
Project Manager: Joan Rogers

Reported:
Aug-13-14 09:13

Quality Control

All quality control audits were within the CRL limits.



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
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Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Klug Farm
Project Number: 14JRG3
Project Manager: Joan Rogers

Reported:
Aug-13-14 09:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S01	1406002-01	Water	Jun-02-14 12:55	Jun-03-14 11:48
S02	1406002-02	Water	Jun-02-14 13:08	Jun-03-14 11:48
S03	1406002-03	Water	Jun-02-14 13:08	Jun-03-14 11:48
S04	1406002-04	Water	Jun-02-14 13:50	Jun-03-14 11:48
S05	1406002-05	Water	Jun-02-14 14:03	Jun-03-14 11:48



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Klug Farm
Project Number: 143R83
Project Manager: Joan Rogers

Reported:
Aug-13-14 09:13

Phosphorus, Colorimetric, EPA 365.4 (modified)
US EPA Region 5 Chicago Regional Laboratory

S01 (1406002-01) Water Sampled: Jun-02-14 12:55 Received: Jun-03-14 11:48

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	85.3		2.40	4.50	mg/L	30	B406061	Jun-18-14	Jun-19-14

S02 (1406002-02) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	15.0		2.13	4.00	mg/L	26.67	B406061	Jun-18-14	Jun-19-14

S03 (1406002-03) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	22.0		0.80	1.50	mg/L	10	B406061	Jun-18-14	Jun-19-14

S04 (1406002-04) Water Sampled: Jun-02-14 13:50 Received: Jun-03-14 11:48

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	27.1		4.00	7.50	mg/L	50	B406061	Jun-18-14	Jun-19-14

S05 (1406002-05) Water Sampled: Jun-02-14 14:05 Received: Jun-03-14 11:48

Analyte	Result	Flags / Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Phosphorus	11		0.08	0.15	mg/L	1	B406061	Jun-18-14	Jun-19-14



Environmental Protection Agency Region 5 Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL 60604

Project: King Farm
Project Number: 14IR03
Project Manager: Joan Rogatz

Reported:
Aug 13 14 09:13

~~Total Kjeldahl Nitrogen, EPA 851.2 (modified)~~

US EPA Region 5 Chicago Regional Laboratory

S01 (1406002-01) Water Sampled: Jun-02-14 12:55 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	275		9.00	15.0	mg/L	30	B406062	Jun-18-14	Jun-26-14

S02 (1406002-02) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	44.7		0.80	1.34	mg/L	2.67	B406062	Jun-18-14	Jun-19-14

S03 (1406002-03) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	50.0		3.00	5.00	mg/L	10	B406062	Jun-18-14	Jun-19-14

S04 (1406002-04) Water Sampled: Jun-02-14 13:50 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	83.2		1.50	2.50	mg/L	5	B406062	Jun-18-14	Jun-19-14

S05 (1406002-05) Water Sampled: Jun-02-14 14:05 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Kjeldahl Nitrogen	U		0.30	0.50	mg/L	1	B406062	Jun-18-14	Jun-19-14



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591

Water Division, USEPA Region 5
77 West Jackson Boulevard
Chicago IL 60604

Project: King Farm
Project Number: 14JR03
Project Manager: Joan Rogers

Reported:
Aug-13-14 09:13

Notes and Definitions

U. Not Detected

NR Not Reported



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CHICAGO REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605



LABORATORY
ACCREDITATION
BUREAU

ACREDITED ISO/IEC 17025

Certified for Testing

Date: 6/17/2014

Subject: Review of Region 5 Data for Klug Farm

From: Anna Knoebel, Chemist *AK*
Region 5 Chicago Regional Laboratory

To: Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

The data being transmitted under this cover memo successfully passed CRL's internal data review procedures as documented in our current Quality Management Plan (QMP) and appropriate Standard Operating Procedures (SOPs). Please be aware that CRL does not perform data validation which is based on your data quality objectives. This function must be performed independently of the laboratory generating the data.

Results in this report represent only the samples analyzed.

Please have the U.S. EPA Project Manager/Officer call the CRL Sample Coordinator at (312) 353-0375 for any comments or questions.

Attached are Results for: Klug Farm

Data Management Coordinator and Date Received

Date Transmitted: 6/17/2014

Analyses included in this report:

Ammonia N DA, Distilled

Nitrate-Nitrite N DA



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2891



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Certificate #12280 Testing

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: King Farm
Project Number: 14JR03
Project Manager: Joan Rogers

Reported:
Jun-17-14 10:22

ANALYSIS CASE NARRATIVE – Distilled Ammonia Nitrogen in Water

Work Order: 1406002
Analyst: Anna Knoebel
Phone #: (312) 353-9467

General Information

Five water samples for Ammonia Nitrogen were received on June 3, 2014. All holding times were met.

Sample Analysis and Results

The samples were distilled and analyzed on June 9, 2014 for Ammonia Nitrogen in water using CRL SOP AIG029B, Revision # 0 (Reference Method, Standard Method 4500 – NH₃-B & G). The samples were stored in the refrigerator at all times, except when in use.

Quality Control

Matrix Spike (MS)

The matrix spike recovery (121 %) for sample 1406002-01 (S01) was slightly above the acceptance limit (80 – 120 %). The blank spike (BS) recovery (99 %) and other QC audits were within the CRL limits. The sample and spike were diluted 20 fold. As a result the spike concentration was diluted out. No flags were used on this basis.

All other quality control audits were within CRL limits or did not result in qualification of the data.

ANALYSIS CASE NARRATIVE – Nitrate-Nitrite Nitrogen in Water

Work Order: 1406002
Analyst: Anna Knoebel
Phone #: (312) 353-9467

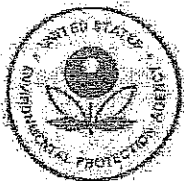
General Information

Five water samples for Nitrate-Nitrite Nitrogen were received on June 3, 2014. All holding times were met.

Sample Analysis and Results

AK 6-17-14

Anna Knoebel, Chemist



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591



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Certificate #12296 Testing

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Project: Klug Farm
Project Number: 140603
Project Manager: Joan Rogers

Reported:
Jun-17-14 10:22

The samples were analyzed for Nitrate-Nitrite Nitrogen in water on June 6, 2014 and June 12, 2014 using CRL SOP AIG031A, Revision #1.1 (Standard Method 4500 - NO₃-E). The samples were stored in the refrigerator at all times except when in use. All samples except 1406002-05 (S05) were centrifuged prior to analysis to remove particulates.

Quality Control

All quality control audits were within CRL limits or did not result in qualification of the data

AKL 6-17-14
Anna Knoebel, Chemist



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591



LABORATORY
ACCREDITATION
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Certificate # 12283 Testing

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Klug Farm
Project Number: 141R03
Project Manager: Joan Rogers

Reported:
Jun-17-14 10:22

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S01	1406002-01	Water	Jun-02-14 12:55	Jun-03-14 11:48
S02	1406002-02	Water	Jun-02-14 13:08	Jun-03-14 11:48
S03	1406002-03	Water	Jun-02-14 13:08	Jun-03-14 11:48
S04	1406002-04	Water	Jun-02-14 13:50	Jun-03-14 11:48
S05	1406002-05	Water	Jun-02-14 14:05	Jun-03-14 11:48

ALL 6-17-14

Anna Knoebel, Chemist



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 836-2591



LABORATORY
ACCREDITATION
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ACCREDITED ISO/IEC 17025
Certificate #12280 Testing

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Klug Farm
Project Number: 14JR03
Project Manager: Joan Rogers

Reported:
Jun-17-14 10:22

Nitrate - Nitrite Nitrogen, SM 4500E (modified)

USEPA Region 5 Chicago Regional Laboratory

S01 (1406002-01) Water Sampled: Jun-02-14 12:55 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite-N	0.32		0.09	0.25	mg/L	1	B406047	Jun-05-14	Jun-12-14

S02 (1406002-02) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite-N	8.82		0.18	0.50	mg/L	2	B406047	Jun-05-14	Jun-06-14

S03 (1406002-03) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite-N	3.88		0.36	1.00	mg/L	4	B406047	Jun-05-14	Jun-06-14

S04 (1406002-04) Water Sampled: Jun-02-14 13:56 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite-N	U	U	0.09	0.25	mg/L	1	B406047	Jun-05-14	Jun-12-14

S05 (1406002-05) Water Sampled: Jun-02-14 14:05 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Nitrate-Nitrite-N	U	U	0.09	0.25	mg/L	1	B406047	Jun-05-14	Jun-06-14

Anna Knoebel, Chemist

AK 6-17-14



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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Phone: (312) 353-8370 Fax: (312) 886-2591



LABORATORY
ACCREDITATION
BUREAU
ACCREDITED ISO/IEC 17025
Certificate #12286 Testing

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Klug Farm
Project Number: 14R03
Project Manager: Joan Rogers

Reported:
Jun-17-14 10:22

~~Ammonia Nitrogen, SM4500 N & C (modified)~~

US EPA Region 5 Chicago Regional Laboratory

S01 (1406002-01) Water Sampled: Jun-02-14 12:55 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	53.5	++	1.30	4.00	mg/L	20	B406051	Jun-09-14	Jun-09-14

S02 (1406002-02) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	10.8	++	0.60	2.00	mg/L	10	B406051	Jun-09-14	Jun-09-14

S03 (1406002-03) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	11.4	++	0.60	2.00	mg/L	10	B406051	Jun-09-14	Jun-09-14

S04 (1406002-04) Water Sampled: Jun-02-14 13:59 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	8.72	++	0.60	2.00	mg/L	10	B406051	Jun-09-14	Jun-09-14

S05 (1406002-05) Water Sampled: Jun-02-14 14:05 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Ammonia as N	U	++	0.06	0.20	mg/L	1	B406051	Jun-09-14	Jun-09-14

AK 6-17-14

Anna Knoebel, Chemist



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2391



LABORATORY
ACCREDITATION
BUREAU
ACCREDITED UNDER 17025
Certificate #12283 Testing

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Klug Farm
Project Number: 14JR03
Project Manager: Joan Rogers

Reported:
Jun-17-14 10:22

Notes and Definitions

- ++ CRL is not accredited for the marked test method and results.
- U Not Detected
- NR Not Reported

AKL 6-17-14

Anna Knoebel, Chemist

Items for Project Manager Review

Lab Number	Analysis	Analyte	Exception
			Default Report (not modified)
			VERSION 6.12.2008
	Ammonia N DA, Distilled	(Water)	J-Flags used
	Ammonia N DA, Distilled	(Water)	Result calculations based on MDL
	Nitrate-Nitrite N DA	(Water)	J-Flags used
	Nitrate-Nitrite N DA	(Water)	Result calculations based on MDL
	Nitrate-Nitrite N DA	(Water)	U-Flags used
1406002-01	Ammonia N DA, Distilled	Ammonia as N	++ CRL is not accredited for the marked test method and results
1406002-02	Ammonia N DA, Distilled	Ammonia as N	++ CRL is not accredited for the marked test method and results
1406002-03	Ammonia N DA, Distilled	Ammonia as N	++ CRL is not accredited for the marked test method and results
1406002-04	Ammonia N DA, Distilled	Ammonia as N	++ CRL is not accredited for the marked test method and results
1406002-05	Ammonia N DA, Distilled	Ammonia as N	++ CRL is not accredited for the marked test method and results
B406051-MS1	Ammonia N DA, Distilled	Ammonia as N	Exceeds upper control limit

Sample, Log and Extraction Comments

1406002-01

Ammonia N DA, Distilled

pH = 1

pH = 1

Nitrate-Nitrite N DA

pH = 1

pH = 1

1406002-02

Ammonia N DA, Distilled

pH = 1

pH = 1

Nitrate-Nitrite N DA

pH = 1

pH = 1

1406002-03

Ammonia N DA, Distilled

pH = 1

pH = 1

Nitrate-Nitrite N DA

pH = 1

pH = 1

1406002-04

Ammonia N DA, Distilled

pH = 1

pH = 1

Nitrate-Nitrite N DA

pH = 1

pH = 1

1406002-05

Ammonia N DA, Distilled

pH = 1

pH = 1

Nitrate-Nitrite N DA

pH = 1

pH = 1



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5 CHICAGO REGIONAL LABORATORY

536 SOUTH CLARK STREET

CHICAGO, ILLINOIS 60605



LABORATORY
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BUREAU

ACCREDITED TO ISO/IEC 17025

Certificate # 17229 Testing

Date: 6/24/2014

Subject: Review of Region 5 Data for Klug Farm

From: Colin Breslin, Chemist
Region 5 Chicago Regional Laboratory

CB 6/24/14

To: Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

The data being transmitted under this cover memo successfully passed CRL's internal data review procedures as documented in our current Quality Management Plan (QMP) and appropriate Standard Operating Procedures (SOPs). Please be aware that CRL does not perform data validation which is based on your data quality objectives. This function must be performed independently of the laboratory generating the data.

Results in this report represent only the samples analyzed.

Please have the U.S. EPA Project Manager/Officer call the CRL Sample Coordinator at (312) 353-0375 for any comments or questions.

Attached are Results for: Klug Farm

Data Management Coordinator and Date Received

Date Transmitted: ____/____/____

Analyses included in this report:

Solids, TDS

Solids, TSS



Environmental Protection Agency Region 5
Chicago Regional Laboratory

535 South Clark Street, Chicago, IL 60605
Phone: (312) 353-8370 Fax: (312) 886-2591



Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago, IL, 60604

Project: Klug Farm
Project Number: 14JR03
Project Manager: Joan Rogers

Reported:
Jun-24-14 10:26

Analysis Case Narrative

General Information

Five water samples for the analysis of total dissolved solids (TDS) and total suspended solids (TSS) were received at the Chicago Regional Laboratory (CRL) on June 3, 2014. All samples were analyzed within the seven day hold time. The designated analyst, Colin Breslin, can be reached at 312-886-2912.

Sample Analysis and Results

Samples for TDS were prepared and analyzed according to CRL SOP AIG017, Revision No: 3.0 (SM 2540C). Sample 1406002-01 (Sample Name: S01) was flagged "K - The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value". See below under Quality Control for an explanation.

Samples for TSS were prepared and analyzed according to CRL SOP AIG018, Revision No: 4.0 (SM 2540D). Sample 1406002-01 (Sample Name: S01) was flagged "J - The identification of the analyte is acceptable; the reported value is an estimate". See below under Quality Control for an explanation.

Quality Control

All Quality Control (QC) audits were within CRL limits for the requested analytes or did not result in qualification of the data, except as follows:

TDS - Constant Drying Weight

Sample 1406002-01 (Sample Name: S01) did not reach a constant dry weight after three drying cycles, it continued to decrease. A constant dry weight for TDS is defined as consecutive dry weights that do not differ by more than 0.5 mg. This trend was observed in the duplicate result for sample 1406002-01 (Sample Name: S01) as well. The suspected cause was a complex sample matrix that formed a residue that was not readily amenable to the prescribed drying cycles. Therefore, the result was flagged "K - potential high bias".

TSS - QC Duplicate

Sample 1406002-01 (Sample Name: S01) and its batch QC duplicate had a relative percent difference (RPD) of 32%, which exceeded the control limit of 20%. The suspected cause was a complex sample matrix that remained non-homogenous even after vigorous shaking. Therefore, the result was flagged "J - estimated".

CB 6/24/14
Colin Breslin, Chemist



Environmental Protection Agency Region 5
Chicago Regional Laboratory

536 South Clark Street, Chicago, IL 60605
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Certificate # 13289 Testing

Water Division, USEPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: Klug Farm
Project Number: 144R03
Project Manager: Joan Rogers

Reported:
Jun-24-14 10:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S01	1406002-01	Water	Jun-02-14 12:55	Jun-03-14 11:48
S02	1406002-02	Water	Jun-02-14 13:08	Jun-03-14 11:48
S03	1406002-03	Water	Jun-02-14 13:08	Jun-03-14 11:48
S04	1406002-04	Water	Jun-02-14 13:50	Jun-03-14 11:48
S05	1406002-05	Water	Jun-02-14 14:05	Jun-03-14 11:48

CB 6/24/14
Colin Breslin, Chemist



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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Phone (312) 353-8370 Fax (312) 386-2591



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Certificate # 12382 Testing

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: King Farm
Project Number: 14TR03
Project Manager: Joan Rogers

Reported:
Jun-24-14 10:26

Dissolved Solids, S₁₀₀ 25-00 (modified)

US EPA Region 5 Chicago Regional Laboratory

S01 (1406002-01) Water Sampled: Jun-02-14 12:55 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	3460	K		20.0	mg/L	1	B406045	Jun-04-14	Jun-05-14

S02 (1406002-02) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	1170			20.0	mg/L	1	B406045	Jun-04-14	Jun-05-14

S03 (1406002-03) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	1110			20.0	mg/L	1	B406045	Jun-04-14	Jun-05-14

S04 (1406002-04) Water Sampled: Jun-02-14 13:50 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	2570			20.0	mg/L	1	B406045	Jun-04-14	Jun-05-14

S05 (1406002-05) Water Sampled: Jun-02-14 14:05 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Dissolved Solids	U			20.0	mg/L	1	B406045	Jun-04-14	Jun-05-14

CB 6/24/14

Colin Bresna, Chemist



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Certificate #12283 Testing

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL 60604

Project: King Farm
Project Number: 140R03
Project Manager: Joan Rogers

Reported:
Jun-24-14 10:26

Total Suspended Solids, SM 2540 D (modified)

US EPA Region 5 Chicago Regional Laboratory

S01 (1406002-01) Water Sampled: Jun-02-14 12:55 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Suspended Solids	58			5	mg/L	1	B406046	Jun-04-14	Jun-04-14

S02 (1406002-02) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Suspended Solids	139			5	mg/L	1	B406046	Jun-04-14	Jun-04-14

S03 (1406002-03) Water Sampled: Jun-02-14 13:08 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Suspended Solids	140			5	mg/L	1	B406046	Jun-04-14	Jun-04-14

S04 (1406002-04) Water Sampled: Jun-02-14 13:50 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Suspended Solids	510			5	mg/L	1	B406046	Jun-04-14	Jun-04-14

S05 (1406002-05) Water Sampled: Jun-02-14 14:05 Received: Jun-03-14 11:48

Analyte	Result	Flags/ Qualifiers	MDL	Limit	Units	Dilution	Batch	Prepared	Analyzed
Total Suspended Solids	0			5	mg/L	1	B406046	Jun-04-14	Jun-04-14

CB 6/24/14
Colin Breslin, Chemist



Environmental Protection Agency Region 5
Chicago Regional Laboratory

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LABORATORY
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ACCREDITED NUMBER: 17224
Certificate # 12260-1-2000

Water Division, US EPA Region 5
77 West Jackson Boulevard
Chicago IL, 60604

Project: King Farm
Project Number: 143R03
Project Manager: Joan Rogers

Reported:
Jan-24-14 10:26

Notes and Definitions

- K The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
- J The identification of the analyte is acceptable; the reported value is an estimate.
- U Not Detected
- NK Not Reported

CB 6/24/14

Colin Breslin, Chemist

Sample, Log and Extraction Comments

1406002-01

Solids, TDS

unpreserved
pH = 1

Solids, TSS

unpreserved
pH = 1

1406002-02

Solids, TDS

unpreserved
pH = 1

Solids, TSS

unpreserved
pH = 1

1406002-03

Solids, TDS

unpreserved
pH = 1

Solids, TSS

unpreserved
pH = 1

1406002-04

Solids, TDS

unpreserved
pH = 1

Solids, TSS

unpreserved
pH = 1

1406002-05

Solids, TDS

unpreserved
pH = 1

Solids, TSS

unpreserved
pH = 1

CB 6/24/14

Items for Project Manager Review

Lab Number	Analysis	Analyte	Exception
			Default Report (not modified) VERSION 6.12.2008
1406062-01	Solids, TDS	Total Dissolved Solids	K: The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
B406045-DUP1	Solids, TDS	Total Dissolved Solids	K: The identification of the analyte is acceptable; the reported value may be biased high. The actual value is expected to be less than the reported value.
B406046-DUP1	Solids, TSS	Total Suspended Solids	Exceeds RPD control limit.

CB 6/24/14



Pace Analytical Services, Inc.
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)458-2435

June 10, 2014

Kimberly O'Neill
SAIC
McLean/Enterprise Center
8301 Greensboro Drive
McLean, VA 22102

RE: Project: 14JR03 KLUG FARM
Pace Project No.: 4097292

Dear Kimberly O'Neill:

Enclosed are the analytical results for sample(s) received by the laboratory on June 02, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Steven Mieczko
steve.mieczko@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project 14JR03 KLUG FARM
Pace Project No.: 4097292

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: EB7948
Illinois Certification #: 200050
Kentucky Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334

New York Certification #: 11888
North Dakota Certification #: R-150
South Carolina Certification #: 83006001
US Dept of Agriculture #: S-76505
Wisconsin Certification #: 405132750

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SAMPLE SUMMARY

Project: 14JR03 KLUG FARM

Pace Project No.: 4097292

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4097292001	SILAGE	Water	06/02/14 12:55	06/02/14 15:20
4097292002	CONFLUENCE W/ DITCH	Water	06/02/14 13:08	06/02/14 15:20
4097292003	FEEDLOT RUNOFF	Water	06/02/14 13:50	06/02/14 15:20
4097292004	DUPLICATE SO2	Water	06/02/14 13:08	06/02/14 15:20
4097292005	BLANK	Water	06/02/14 14:05	06/02/14 15:20

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SAMPLE ANALYTE COUNT

Project: 14JR03 KLUG FARM

Pace Project No.: 4097292

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4097292001	SILAGE	SM 9222D	DEY	1
		SM 5210B	HKV	1
4097292002	CONFLUENCE W/ DITCH	SM 9222D	DEY	1
		SM 5210B	HKV	1
4097292003	FEEDLOT RUNOFF	SM 9222D	DEY	1
		SM 5210B	HKV	1
4097292004	DUPLICATE SO2	SM 5210B	HKV	1
4097292005	BLANK	SM 5210B	HKV	1

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ANALYTICAL RESULTS

Project: 14JR03 KLUG FARM

Pace Project No.: 4097292

Sample: SILAGE Lab ID: 4097292001 Collected: 06/02/14 12:55 Received: 06/02/14 15:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
9222D MICRO Fecal Coli by MF	Analytical Method: SM 9222D Preparation Method: SM 9222D								
Fecal Coliforms	TNTC	CFU/100 mL	100000	100000	100000	06/02/14 16:55	06/02/14 16:55		1g
5210B.BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	6800	mg/L	2000	2000	1000	06/02/14 15:55	06/07/14 12:15		

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ANALYTICAL RESULTS

Project: 14JR03 KLUG FARM

Pace Project No.: 4097292

Sample: CONFLUENCE W/ DITCH Lab ID: 4097292002 Collected: 06/02/14 13:08 Received: 06/02/14 15:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
9222D MICRO Fecal Coli by MF	Analytical Method: SM 9222D Preparation Method: SM 9222D								
Fecal Coliforms	14200000	CFU/100 mL	100000	100000	10000	06/02/14 16:55	06/02/14 16:55		
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	457	mg/L	200	200	100	06/02/14 15:55	06/07/14 12:15		

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ANALYTICAL RESULTS

Project: 14JR03 KLUG FARM

Pace Project No.: 4097292

Sample: FEEDLOT RUNOFF Lab ID: 4097292003 Collected: 06/02/14 13:50 Received: 06/02/14 15:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
9222D MICRO Fecal Coll by MF Analytical Method: SM 9222D Preparation Method: SM 9222D									
Fecal Coliforms	22000000	CFU/100 mL	1000000	1000000	10000	06/02/14 16:55	06/02/14 16:55		
5210B BOD, 5 day Analytical Method: SM 5210B Preparation Method: SM 5210B									
BOD, 5 day	78.8	mg/L	75.0	75.0	37.5	06/02/14 15:55	06/07/14 12:15		

REPORT OF LABORATORY ANALYSIS

Date: 06/10/2014 09:47 AM

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ANALYTICAL RESULTS

Project: 14JR03 KLUG FARM

Pace Project No.: 4097282

Sample: DUPLICATE SO2 Lab ID: 4097292004 Collected: 06/02/14 13:08 Received: 06/02/14 15:20 Matrix: Water

Parameters	Results	Units	LOQ	LCD	DF	Prepared	Analyzed	CAS No.	Qual
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	427	mg/L	200	200	100	06/02/14 15:55	06/07/14 12:15		

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ANALYTICAL RESULTS

Project: 14JR03 KLUG FARM

Pace Project No.: 4097292

Sample: BLANK Lab ID: 4097292005 Collected: 06/02/14 14:05 Received: 06/02/14 15:20 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
5210B BOD, 5 day	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	2.5	mg/L	2.0	2.0	1	06/02/14 15:55	06/07/14 12:15		

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QUALITY CONTROL DATA

Project: 14JR03 KLUG FARM

Pace Project No.: 4097292

QC Batch: MBIO/3431

Analysis Method: SM 9222D

QC Batch Method: SM 9222D

Analysis Description: 9222D MICRO Fecal Coliform by MF

Associated Lab Samples: 4097292001, 4097292002, 4097292003

METHOD BLANK: 986044

Matrix: Water

Associated Lab Samples: 4097292001, 4097292002, 4097292003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fecal Coliforms	CFU/100 mL	<1	1.0	06/02/14 16:55	

METHOD BLANK: 986048

Matrix: Water

Associated Lab Samples: 4097292001, 4097292002, 4097292003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fecal Coliforms	CFU/100 mL	<1	1.0	06/02/14 16:55	

SAMPLE DUPLICATE: 986045

Parameter	Units	4097292001 Result	Dup Result	RPD	Max RPD	Qualifiers
Fecal Coliforms	CFU/100 mL	TNTC	TNTC			1q

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Date: 06/10/2014 09:47 AM

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QUALITY CONTROL DATA

Project: 14JR03 KLUG FARM
Pace Project No.: 4067292

QC Batch: WET/18818 Analysis Method: SM 5210B
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 4097292001, 4097292002, 4097292003, 4097292004, 4097292005

METHOD BLANK: 983647 Matrix: Water
Associated Lab Samples: 4097292001, 4097292002, 4097292003, 4097292004, 4097292005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
BOD, 5 day	mg/L	ND	2.0	06/07/14 12:15	

LABORATORY CONTROL SAMPLE & LCSD: 983649			983650							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	198	228	225	115	114	84.6-115	1	20	

SAMPLE DUPLICATE: 983651		4097292002	Dup			Max		
Parameter	Units	Result	Result	RPD		RPD	Qualifiers	
BOD, 5 day	mg/L	457	442	3		20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Date: 06/10/2014 09:47 AM

Page 11 of 15



QUALIFIERS

Project: 14JR03 KLUG FARM

Pace Project No.: 4097292

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAP Institute.

WORKORDER QUALIFIERS

WO: 4097292

[1] Opened to revise comment on -001, SVM 6/10/14

ANALYTE QUALIFIERS

1g Fecal Coliform count too numerous to count as defined by method. Sample concentration is $\geq 100,000$ CFU/100 mL.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 14JR03 KLUG FARM

Pace Project No.: 4097292

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4097292001	SILAGE	SM 9222D	MBIO/3430	SM 9222D	MBIO/3431
4097292002	CONFLUENCE W/ DITCH	SM 9222D	MBIO/3430	SM 9222D	MBIO/3431
4097292003	FEEDLOT RUNOFF	SM 9222D	MBIO/3430	SM 9222D	MBIO/3431
4097292001	SILAGE	SM 5210B	WET/18818	SM 5210B	WET/18903
4097292002	CONFLUENCE W/ DITCH	SM 5210B	WET/18818	SM 5210B	WET/18903
4097292003	FEEDLOT RUNOFF	SM 5210B	WET/18818	SM 5210B	WET/18903
4097292004	DUPLICATE SO2	SM 5210B	WET/18818	SM 5210B	WET/18903
4097292005	BLANK	SM 5210B	WET/18818	SM 5210B	WET/18903

REPORT OF LABORATORY ANALYSIS

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WEEK 2: Becoming a woman

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416-7-2572

UFG

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